What is claimed is:

1. A production apparatus for a metal tube having an oval cross section comprising:

an impact extrusion device which impact-extrudes a disk-shaped metal slug to form a metal tube integrally including a mouth, a shoulder and a body of an oval cross section; and

a trimming device which trims a hem portion of the oval body of the tube formed by the impact extrusion device by a turning operation.

2. An oval cross section metal tube production apparatus as set forth in claim 1,

wherein the impact extrusion device includes a columnar punch having an axis, a press die, and a stripper provided around the punch in an axially movable manner,

wherein the punch includes a punch shaft, a punch head provided at a distal end of the shaft and including a punch shoulder,

wherein the die includes a die base, and a die ring which retains the metal slug therein,

wherein the punch shoulder has an outer surface having an oval cross section, and the die ring has an inner peripheral surface having an oval cross section,

wherein the punch shoulder is insertable in the die ring.

3. An oval cross section metal tube production apparatus as set forth in claim 2,

wherein the punch head includes a base of an oval cross section connected to the punch shaft, the punch shoulder which is provided at a distal end of the base and has a greater diameter than the base, and a first taper surface having an oval cross section which has a diameter progressively decreasing toward a distal end thereof from the punch shoulder,

wherein generating lines of the first taper surface on diametrically opposite

sides of a major axis of the first taper surface each form an angle of not smaller than 55 degrees and not greater than 65 degrees with respect to the axis of the punch,

wherein generating lines of the first taper surface on diametrically opposite sides of a minor axis of the first taper surface each form an angle of not smaller than 43 degrees and not greater than 53 degrees with respect to the axis of the punch,

wherein the outer surface of the shoulder and the inner peripheral surface of the die ring are each dimensioned so that a dimensional ratio of a minor axis to a major axis thereof is not smaller than 0.5 and not greater than 0.9.

4. An oval cross section metal tube production apparatus as set forth in claim 2,

wherein the punch shaft has a circular cylindrical shape,

wherein a minor axis of the base of the punch head has a length that is equal to a diameter of the punch shaft,

wherein the punch head has second taper surfaces respectively defined on proximal peripheral portions thereof on diametrically opposite sides of a major axis thereof and connected to an outer peripheral surface of the punch shaft,

wherein generating lines of the second taper surfaces on diametrically opposite sides of the major axis of the punch head each form an angle of not smaller than 10 degrees and not greater than 60 degrees with respect to the axis of the punch.

5. An oval cross section metal tube production apparatus as set forth in claim 2,

wherein the stripper includes a plurality of segments circumferentially arranged, the segments being each radially movable,

wherein distal edges of inner peripheral surfaces of the segments each have an arcuate shape which conforms to an outer peripheral shape of the base of the punch head.

6. An oval cross section metal tube production apparatus as set forth in claim 5,

further comprising a biasing member which biases the respective segments radially inward.

7. An oval cross section metal tube production apparatus as set forth in claim 1,

wherein the trimming device includes a mandrel around which the metal tube formed by the impact extrusion device is fitted, the mandrel being rotatable about an axis thereof, and a cutting tool which cuts the hem portion of the metal tube fitted around the mandrel,

wherein the mandrel includes a taper portion having a truncated conical shape which has a diameter progressively decreasing toward a distal end thereof,

wherein a proximal portion of the taper portion has a diameter greater than a length of a major axis of an inner peripheral surface of the body of the metal tube,

wherein the hem portion of the metal tube is cut at an axially middle position of the taper portion by the cutting tool,

wherein the hem portion of the metal tube fitted around the mandrel is flared into a circular shape by the taper portion,

wherein the metal tube having the flared hem portion is rotated relative to the cutting tool by the rotation of the mandrel, whereby the hem portion of the tube is circumferentially cut by the cutting tool.

8. An oval cross section metal tube production apparatus as set forth in claim 7,

wherein the taper portion of the mandrel has a groove provided in an outer peripheral surface thereof in association with the cutting tool as extending circumferentially thereof.

9. An oval cross section metal tube production apparatus as set forth in claim 7, further comprising:

an annealing device which anneals the metal tube formed and hardened by

the impact extrusion performed by the impact extrusion device; and

a restoration device which restores the hem portion of the tube deformed into the circular shape by the mandrel of the trimming device into the oval shape,

wherein the annealing device anneals the metal tube with the hem portion of the metal tube restored into the oval shape.

10. A production method for a metal tube having an oval cross section comprising the steps of:

impact-extruding a disk-shaped metal slug to form a metal tube integrally including a mouth, a shoulder and a body of an oval cross section; and

trimming a hem portion of the oval body of the tube formed in the impact extrusion step by a turning operation.

11. An oval cross section metal tube production method as set forth in claim 10,

wherein the impact extrusion step is performed by an impact extrusion device including a columnar punch having an axis, a press die and a stripper provided around the punch in an axially movable manner,

wherein the punch includes a punch shaft, and a punch head provided at a distal end of the shaft and including a punch shoulder,

wherein the die includes a die base, and a die ring which retains the metal slug therein,

wherein the punch shoulder has an outer surface having an oval cross section, and the die ring has an inner peripheral surface having an oval cross section,

wherein the punch shoulder is insertable in the die ring.

12. An oval cross section metal tube production method as set forth in claim 11,

wherein the punch head includes a base of an oval cross section connected to the punch shaft, the punch shoulder which is provided at a distal end of the base and

has a greater diameter than the base, and a first taper surface having an oval cross section which has a diameter progressively decreasing toward a distal end thereof from the punch shoulder,

wherein generating lines of the first taper surface on diametrically opposite sides of a major axis of the first taper surface each form an angle of not smaller than 55 degrees and not greater than 65 degrees with respect to the axis of the punch,

wherein generating lines of the first taper surface on diametrically opposite sides of a minor axis of the first taper surface each form an angle of not smaller than 43 degrees and not greater than 53 degrees with respect to the axis of the punch,

wherein the outer surface of the shoulder and the inner peripheral surface of the die ring are each dimensioned so that a dimensional ratio of a minor axis to a major axis thereof is not smaller than 0.6 and not greater than 0.9.

13. An oval cross section metal tube production method as set forth in claim 11,

wherein the punch shaft has a circular cylindrical shape,

wherein a minor axis of the base of the punch head has a length that is equal to a diameter of the punch shaft,

wherein the punch head has second taper surfaces respectively defined on proximal peripheral portions thereof on diametrically opposite sides of a major axis thereof and connected to an outer peripheral surface of the punch shaft,

wherein generating lines of the second taper surfaces on the diametrically opposite sides of the major axis of the punch head each form an angle of not smaller than 10 degrees and not greater than 60 degrees with respect to the axis of the punch.

14. An oval cross section metal tube production method as set forth in claim 11,

wherein the stripper includes a plurality of segments circumferentially arranged, the segments being each radially movable,

wherein distal edges of inner peripheral surfaces of the segments each have an arcuate shape which conforms to an outer peripheral shape of the base of the punch head,

wherein a proximal portion of the metal tube formed to be fitted around the punch by the impact extrusion is pushed toward a distal end of the punch by the stripper, whereby the metal tube is released from the punch.

15. An oval cross section metal tube production method as set forth in claim 14,

wherein the segments are biased radially inward during the releasing.

16. An oval cross section metal tube production method as set forth in claim 10,

wherein the hem portion of the metal tube which is formed and hardened in the impact extrusion step is deformed into a circular shape and, after the hem portion is restored into an oval shape, the metal tube is annealed in the trimming step.

17. An oval cross section metal tube production method as set forth in claim 10,

wherein the trimming step is performed by a trimming device including a mandrel around which the metal tube formed in the impact extrusion step is fitted, the mandrel being rotatable about an axis thereof, and a cutting tool which cuts the hem portion of the metal tube fitted around the mandrel,

wherein the mandrel includes a taper portion having a truncated conical shape which has a diameter progressively decreasing toward a distal end thereof,

wherein a proximal portion of the taper portion has a diameter greater than a length of a major axis of an inner peripheral surface of the body of the metal tube,

wherein the hem portion of the metal tube is cut at an axially middle portion of the taper portion by the cutting tool,

wherein the hem portion of the metal tube fitted around the mandrel is flared into a circular shape by the taper portion,

wherein the metal tube having the flared hem portion is rotated relative to the cutting tool by the rotation of the mandrel, whereby the hem portion of the tube is circumferentially cut by the cutting tool.

18. An oval cross section metal tube production method as set forth in claim 17,

wherein the taper portion of the mandrel has a groove provided in an outer peripheral surface thereof in association with the cutting tool as extending circumferentially thereof, whereby the cutting tool is permitted to intrude into the groove during the cutting.

19. An oval cross section metal tube production method as set forth in claim 17, further comprising the steps of:

annealing the metal tube which is formed and hardened by the impact extrusion performed by the impact extrusion device; and

restoring the hem portion of the tube deformed into the circular shape by the mandrel of the trimming device into the oval shape,

wherein the annealing step follows the restoring step.